FIG. 1

FIG. 2

INSTRUCTION POINTER	REDUNDANCY PREDICTOR	INSTRUCTION	COMMENTS
341B	NOT REDUNDANT	MOVE AX, VALUE1	:Write to AX
341D	NOT REDUNDANT	ADD BX, VALUE2	
3420	REDUNDANT	ADD AX, BX	:Use AX and Write to AX
3422	NOT REDUNDANT	CMP DX, CX	
3424	NOT REDUNDANT	JNL BRANCH2	
3426	NOT REDUNDANT	MOV AX, CX	:Write to AX Without Using Previous Value

FIG. 4

CMP DX, CX 49

INSTRUCTION			USE COUNT	INT. INSTR.	PRIORITY
ADD AX, BX 47	USED	WRITTEN ON	0	D.C.	LOW
ADD BX, VALUE2 45	NOT USED	NOT WRITTEN ON	1	1	HIGH
	USED	NOT WRITTEN ON	1	2	HIGH
MOV AX, VALUE1	USED	WRITTEN ON			REDUNDANT
	NOT USED	WRITTEN ON			

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INSTRUCTION	WRITTEN ON	USED	PRIORITY
MOV AX, VALUE1	NOT WRITTEN ON	NOT USED	LOW

31 ⟍   ⟍16   18⟋   ⟍20   ⟍22   ⟍8

FIG. 3A

INSTRUCTION	WRITTEN ON	USED	PRIORITY
ADD BX, VALUE2	NOT WRITTEN ON	NOT USED	LOW
MOV AX, VALUE1	NOT WRITTEN ON	NOT USED	LOW

32 ⟍   31 ⟍   ⟍16   18⟋   ⟍20   ⟍22   ⟍8

FIG. 3B

INSTRUCTION	WRITTEN ON	USED	PRIORITY
ADD AX, BX	NOT WRITTEN ON	NOT USED	LOW
ADD BX, VALUE2	NOT WRITTEN ON	USED	HIGH
MOV AX, VALUE1	WRITTEN ON	USED	HIGH

33 ⟍   32 ⟍   31 ⟍   ⟍16   18⟋   ⟍20   ⟍22   ⟍8

FIG. 3C

INSTRUCTION	WRITTEN ON	USED	PRIORITY
CMP DX, CX	WRITTEN ON	USED	HIGH
ADD AX, BX	NOT WRITTEN ON	NOT USED	LOW
ADD BX, VALUE2	NOT WRITTEN ON	USED	HIGH
MOV AX, VALUE1	WRITTEN ON	USED	HIGH

34 ⟍   33 ⟍   32 ⟍   31 ⟍   ⟍16   18⟋   ⟍20   ⟍22   ⟍8

FIG. 3D

INSTRUCTION	WRITTEN ON	USED	PRIORITY
JNL BRANCH2	NOT WRITTEN ON	NOT USED	LOW
CMP DX, CX	WRITTEN ON	USED	HIGH
ADD AX, BX	NOT WRITTEN ON	NOT USED	LOW
ADD BX, VALUE2	NOT WRITTEN ON	USED	HIGH
MOV AX, VALUE1	WRITTEN ON	USED	HIGH

35 ⟍   34 ⟍   33 ⟍   32 ⟍   31 ⟍   ⟍16   18⟋   ⟍20   ⟍22   ⟍8

FIG. 3E

	INSTRUCTION	WRITTEN ON	USED	PRIORITY
36	MOV AX, CX	NOT WRITTEN ON	NOT USED	LOW
35	JNL BRANCH2	NOT WRITTEN ON	NOT USED	LOW
34	CMP DX, CX	WRITTEN ON	USED	HIGH
33	ADD AX, BX	WRITTEN ON	NOT USED	REDUNDANT
32	ADD BX, VALUE2	NOT WRITTEN ON	USED	HIGH
31	MOV AX, VALUE1	WRITTEN ON	USED	HIGH

8

FIG. 3F   16   18   20   22

	INSTRUCTION	WRITTEN ON	USED	PRIORITY
36	MOV AX, CX	NOT WRITTEN ON	NOT USED	LOW
35	JNL BRANCH2	NOT WRITTEN ON	NOT USED	LOW
34	CMP DX, CX	WRITTEN ON	USED	HIGH
33	ADD AX, BX	WRITTEN ON	NOT USED	REDUNDANT
32	ADD BX, VALUE2	NOT WRITTEN ON	USED	HIGH

8

FIG. 3G   16   18   20   22

	INSTRUCTION	WRITTEN ON	USED	PRIORITY
36	MOV AX, CX	NOT WRITTEN ON	NOT USED	LOW
35	JNL BRANCH2	NOT WRITTEN ON	NOT USED	LOW
34	CMP DX, CX	WRITTEN ON	USED	HIGH
33	ADD AX, BX	WRITTEN ON	NOT USED	REDUNDANT

8

FIG. 3H   16   18   20   22

	INSTRUCTION	WRITTEN ON	USED	PRIORITY
36	MOV AX, CX	NOT WRITTEN ON	NOT USED	LOW
35	JNL BRANCH2	NOT WRITTEN ON	NOT USED	LOW
34	CMP DX, CX	NOT WRITTEN ON	USED	HIGH

8

FIG. 3I   16   18   20   22

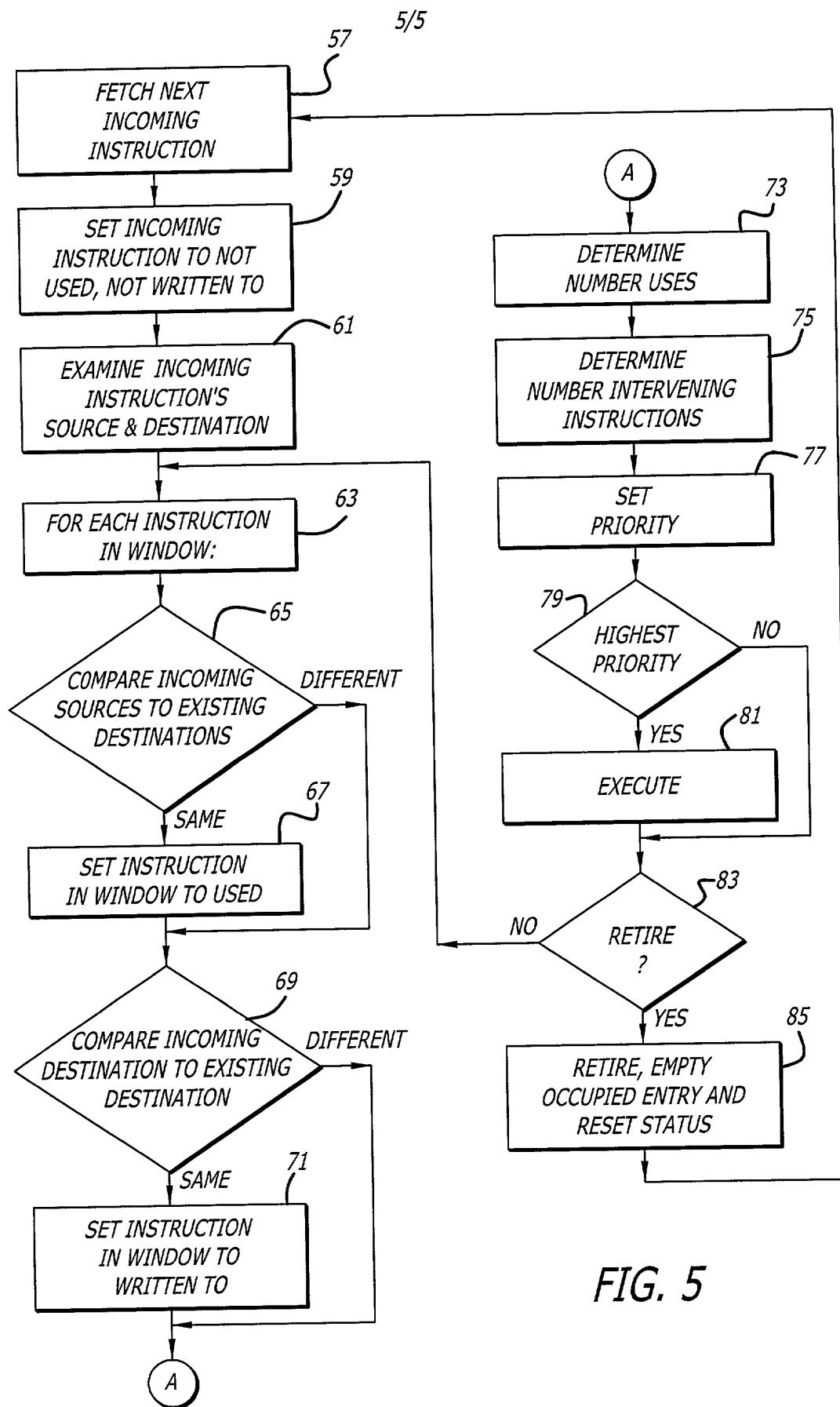|	INSTRUCTION	WRITTEN ON	USED	PRIORITY
36	MOV AX, CX	NOT WRITTEN ON	NOT USED	LOW
35	JNL BRANCH2	NOT WRITTEN ON	NOT USED	LOW

8

FIG. 3J   16   18   20   22

FETCH NEXT
INCOMING
INSTRUCTION
57

SET INCOMING
INSTRUCTION TO NOT
USED, NOT WRITTEN TO
59

EXAMINE INCOMING
INSTRUCTION'S
SOURCE & DESTINATION
61

FOR EACH INSTRUCTION
IN WINDOW:
63

COMPARE INCOMING
SOURCES TO EXISTING
DESTINATIONS
65
DIFFERENT
SAME

SET INSTRUCTION
IN WINDOW TO USED
67

COMPARE INCOMING
DESTINATION TO EXISTING
DESTINATION
69
DIFFERENT
SAME

SET INSTRUCTION
IN WINDOW TO
WRITTEN TO
71

A

A

DETERMINE
NUMBER USES
73

DETERMINE
NUMBER INTERVENING
INSTRUCTIONS
75

SET
PRIORITY
77

HIGHEST
PRIORITY
79
NO
YES

EXECUTE
81

RETIRE
?
83
NO
YES

RETIRE, EMPTY
OCCUPIED ENTRY AND
RESET STATUS
85

FIG. 5